



Gas-hydraulic

The RFS-PC range of gas-hydraulic valve actuators are of a robust, yet compact, modular design built to achieve the highest degree of reliability. Special consideration was given in the design process to facilitating installation and integration into customer control and communication systems.

They are designed to use pipeline gas as the motive power source and utilise a scotch yoke mechanism which is field proven the world over in all types of fluid power applications.

The actuators have two independent systems: a hydraulic atmospherically closed system on one side and a gas or compressed air system on the other. The gas or compressed air system is used for remote control (with local override), the hydraulic multi-function system is used for manual hand pumping in the event of control signal failure or insufficient power gas supply pressure. It is also used for controlling speed of operation and dampening actuator movement. A particularly unique feature of the multi-function system is that it can be used to determine the actual valve torque requirement.

Our control system, like our actuators, is also of a modular design. Common control functions (i.e., remote/local, open and close) are provided as standard. The modular system facilitates integration of optional requirements such as modulating duty, automatic line break, high, low or differential pressure detection systems. Field modifications are also practical and relatively easy to accomplish.

Optional extras may include power gas storage tanks to guarantee operation in the event of power gas failure.

Design Features

- Scotch yoke actuator in either double-acting or spring-return configurations.
- Closed hydraulic multi-function system. (Reservoir sized per number of strokes required.)
- Operating pressure: Up to 200 bar (higher upon request)
- Torque output: Up to 350.000 Nm
- Temperature range-

Mechanical:	Standard	-30°C to 80°C
	Optional	-60°C to 180°C
Electrical:	Standard	-20°C to 40°C
	Optional	-60°C to 60°C
- Area classification: Standard EX II c 2G EEx edm IIB T3, T4 (DIN EN 60079)
Zones 1, 2 (ATEX 94/9/EG)

Gas-hydraulic

valve actuators

The Control System

The modular design of the RFS-PC control system facilitates assembly, operation and maintenance of both standard and custom control logic solutions.

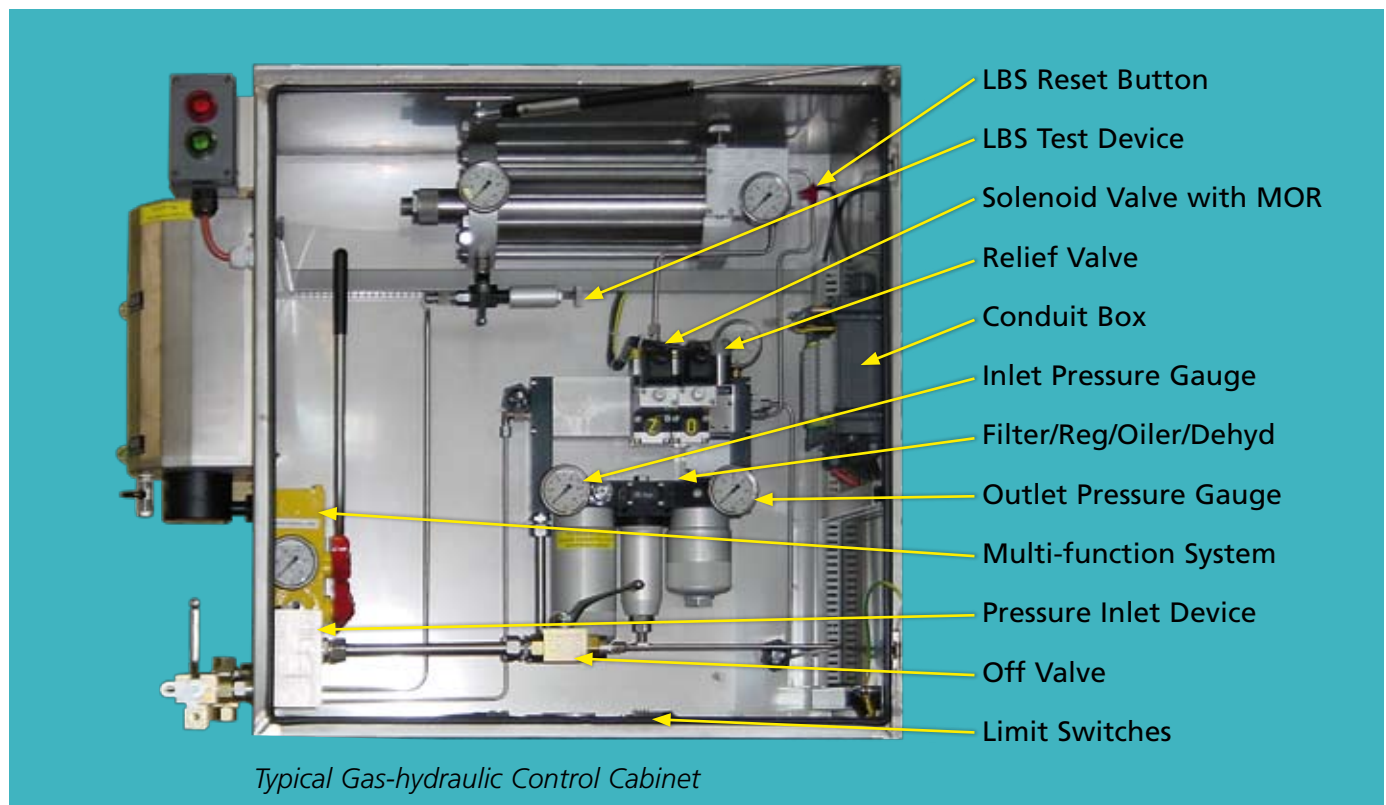
Components are easily added, replaced or removed. Solenoid valves can be changed between normally open and normally closed by a simple 180° rotation - no additional components are required.

Valve actuation is performed in one of four ways: remotely via energisation or de-energisation of the solenoid valves; automatically by control system logic (e.g., low, high or differential pressure detection); locally via either an electrical push-button station or the manual overrides incorporated into solenoid valves or; by the manual hand pump. The speed of operation is independently adjustable for both the opening and closing strokes.

All control components are contained within a weatherproof stainless steel cabinet. They are shipped assembled and tested complete with stainless steel tube and fittings and all necessary internal electrical wiring.

The door of the control cabinet has a pneumatic damper to withstand closure by wind during operation or maintenance, lockable handles and the facility for pad-locking upon request. When the control enclosure is installed directly on the actuator, limit switches are

located within the enclosure. When the control is remotely mounted, a separate terminal box can be provided on the actuator. Five metres of cabling is normally provided for the interconnections, longer upon request.



Established Leaders in Valve Actuation Technology

Control Configuration

RFS-PC has extensive experience providing control systems to meet the operational and safety needs of our customers. We have developed a variety of standard control packages that meet the majority of typical specifications. We can also provide customised control solutions to meet the demands of any actuation application.

The range of solutions include double-acting and spring-return options for On/Off, ESD (emergency shut-down) requirements. Our standard control packages are outlined below:

	TYPE	FUNCTION	DESCRIPTION
DOUBLE-ACTING ACTUATORS	GH	Electric Remote Fail in Place	Two solenoid valves (SOV's) normally de-energised. Actuator will open (or move to intermediate position) upon energisation of OPEN SOV. Actuator will close (or move to intermediate position) upon energisation of CLOSE SOV. Actuator will remain in place upon loss of signal to SOV's. SOV's normally de-energised by limit switches at end of stroke, cylinders are de-pressurised.
	GHI	Electric Remote Maintain	Two solenoid valves (SOV's) normally de-energised. Actuator will open upon momentary (1.5 sec) energisation of OPEN SOV. Actuator will close upon momentary (1.5 sec) energisation of CLOSE SOV. Actuator will execute last command (OPEN/CLOSE) upon loss of signal to SOV's. SOV's normally de-energised by limit switches at end of stroke, cylinders are pressurised.
	GHFSC	Electric Failsafe Fail Close	Two solenoid valves (SOV's), normally energised. Actuator will open upon energisation of both SOV's. Actuator will close upon de-energisation of both SOV's. At end of stroke, actuator cylinder is pressurised.
	GHFSO	Electric Failsafe Fail Open	Two solenoid valves (SOV's), normally energised. Actuator will close upon energisation of both SOV's. Actuator will open upon de-energisation of both SOV's. At end of stroke, actuator cylinder is pressurised.
SPRING-RETURN ACTUATORS	GHSRC	Spring Failsafe Fail Close	One solenoid valve (SOV), normally energised. With latch upon request. Actuator will open upon energisation of SOV. Actuator will close upon de-energisation of SOV. At end of close stroke, actuator cylinder is de-pressurised. At end of open stroke, actuator cylinder is pressurised.
	GHSRO	Spring Failsafe Fail Open	One solenoid valve (SOV), normally energised. With latch upon request. Actuator will close upon energisation of SOV. Actuator will open upon de-energisation of SOV. At end of open stroke, actuator cylinder is de-pressurised. At end of close stroke, actuator cylinder is pressurised.
	GHSRC	Spring Failsafe Maintain	Two solenoid valves (SOV's), one with latch. Actuator will close upon momentary (1.5 sec) energisation of SOV. At end of close stroke, actuator cylinder is depressurised. At end of open stroke, actuator cylinder is pressurised. A latched SOV must be manually reset to resume remote operation.
	GHSRO	Spring Failsafe Maintain	Two solenoid valves (SOV's), one with latch. Actuator will open on momentary (1.5 sec) energisation of SOV. At end of open stroke, actuator cylinder is depressurised. At end of close stroke, actuator cylinder is pressurised. A latched SOV must be manually reset to resume remote operation.

Note: All control configurations include a hydraulic manual override hand pump.

Control Components

Because of our exacting standards and commitment to providing the best possible products to our customers, Rotork Fluid System has designed and manufactures many control components. Some are outlined on this page.

Multi-Function System

Provides facility for emergency hand pump operation, provides speed control and, can be used to measure valve torque requirement.



Linebreak Safety System

Pipeline pressure monitoring device that will signal the actuator if a set rate of pressure drop is detected.



Differential Pressure Switch

Used to prevent operation beyond a given upstream/downstream pressure differential. User definable setting.



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As we are continually developing our products, their design is subject to change without notice. POWTG0807